
REMARKS

Applicant's representative has reviewed and considered the office action mailed on March 25, 2003 and the references cited therewith.

Claims 28, 32, and 34 are cancelled; as a result, claims 2-5, 21-27, 29-31, and 35-37 are now pending in the application.

Objections Related to the Drawings

The drawings were objected to under 37 C.F.R. 1.83(a).

Objections were made to claims 25, 28, 32, 34, and 36.

With respect to claim 25, the office action states, "the hyperbolic taper of claim 25" must be shown or the feature cancelled from the claim. Applicant respectfully submits that claim 25 does not include the words "hyperbolic taper." Thus, the objection is improper. Therefore, applicant requests withdrawal of the objection and reconsideration and allowance of claim 25.

Claims 28, 32, and 34 are cancelled, so the objections are moot.

With respect to claim 36, the office action states, "the hexagonal conductors of claim 36" must be shown or the feature cancelled from the claim. Applicant respectfully submits that claim 36 does not include the words "hexagonal conductors." Thus, the objection is improper. Therefore, applicant requests withdrawal of the objection and reconsideration and allowance of claim 36.

Since the objections to claims 25 and 36 are improper and since claims 28, 32, and 34 are withdrawn, corrected drawings are not required. Therefore, there can be no abandonment of the application for failure to submit corrected drawings.

§ 112 Rejection of the Claims

Claims 3 and 4 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant respectfully traverses these grounds for rejection. As described in MPEP § 2164 *et seq.*, the following represents the *prima facie* case that the office action must state in order to maintain a rejection of nonenablement with respect to the disclosure of a patent application under 35 U.S.C. § 112, first paragraph:

1. a rational basis as to
 - a. why the disclosure does not teach, or
 - b. why to doubt the objective truth of the statements in the disclosure that purport to teach;
2. the manner and process of making and using the invention;
3. that correspond in scope to the claimed invention;
4. to one of ordinary skill in the pertinent technology;
5. without undue experimentation; and
6. dealing with subject matter that would not already be known to the skilled person as of the filing date of the application.

The office action asserts that the recitation in claim 3 that "at least one of the at least two vias is coupled to the pad by a conductive segment" is not supported by the specification. Applicant respectfully submits that the invention is fully enabled because one of ordinary skill in the art will be able to make and use the invention. The statement in the office action that the examiner's interpretation of the claim is not enabled is peripheral to the issue of whether a person of ordinary skill in the art could make and use the invention. Thus, the office action fails to state a *prima facie* case of nonenablement. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 3.

Claim 4 is enabled for reasons analogous to those stated above with respect to claim 3. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 4.

§ 102 Rejection of the Claims

Claim 2 is rejected under 35 U.S.C. § 102(e) as being anticipated by Memis (U.S. Patent No. 6,162, 997). Applicant does not admit that Memis is prior art and reserves the right to "swear behind" Memis as provided for under 37 C.F.R. 1.131. Applicant respectfully traverses the rejection of claim 2.

Claim 2 recites, "at least two vias coupled to the pad." The office action states:

Memis teaches an interconnect comprising: a substrate (Reference numbers 12, 13, 14); a pad (Reference number 20) formed on the substrate; and at least two vias (Reference number 21, 26) coupled to the pad, wherein only one (Reference number 21) of the at least two vias is formed substantially beneath the pad.

However, applicant respectfully disagrees and submits that reference number 26 is not associated with a via. Memis, at column 2, line 16, recites, "plated through holes 26." A plated through hole is not a via. Hence, Memis does not teach "at least two vias," so Memis fails to teach each of the elements of claim 2. Thus, the office action fails to state a prima facie case of anticipation with respect to claim 2. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 2.

§ 103 Rejection of the Claims

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis (U.S. Patent No. 6,162,997) in view of Badet, *et al.* (U.S. Patent No. 4,371,744). Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis (U.S. Patent No. 6,162,997) in view of Goenka, *et al.* (U.S. Patent No. 4,371,744). Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis (U.S. Patent No. 6,162,997) in view of Goenka *et al.* (U.S. Patent No. 4,371,744), and further in view of Frei *et al.* (U.S. Patent No. 5,342,999). Claims 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis (U.S. Patent No. 6,162,997) in view of Barrow (U.S. 5,706,178). Applicant does not admit that Goenka *et al.* is prior art and reserves the right to "swear behind" Goenka *et al.* as provided for under 37 C.F.R. 1.131. Applicant traverses the rejections of claims 3-5 and 21-22.

Claims 3-5 and 21-22 are dependent on claim 2. Each of the rejections of claims 3-5 and 21-22 is premised on Memis teaching "at least two vias coupled to the pad." Applicant has explained above in the discussion of claim 2 why Memis does not teach "at least two vias coupled to the pad," so each of the rejections of claims 3-5 and 21-22 fails. Thus, since the none of the cited references, teach or suggest, either alone or in combination, "at least two vias coupled to the pad," the office action fails to state a *prima facie* case of obviousness with respect to claims 3-5 and 21-22. Therefore, applicant requests withdrawal of the rejections and reconsideration and allowance of claims 3-5 and 21-22.

Claims 23, 29, and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis. Applicant respectfully traverses the rejections of claims 23, 29, and 35. Claims 23, 29, and 35 recite, "at least three vias," "at least four vias," and "at least five vias," respectively. The office action states:

Memis teaches an interconnect comprising: a substrate (Reference numbers 12, 13, 14); a pad (Reference number 20) formed on the substrate; and at least two vias (Reference number 21, 26) coupled to the pad, wherein only one (Reference number 21) of the at least two vias is formed substantially beneath the pad.

However, applicant respectfully submits that reference number 26 is not associated with a via. Memis, at column 2, line 16, recites, "plated through holes 26." A plated through hole is not a via. Hence, Memis does not teach "at least two vias." Thus, the argument set forth in the office action that three vias, four vias, and five vias are obvious in light of the teachings of Memis is flawed because Memis does not teach "at least two vias." Memis teaches plated through holes, which are not vias. Thus, the office action fails to state a *prima facie* case of obviousness with respect to claims 23, 29, and 35. Therefore, applicant requests withdrawal of the rejections and reconsideration and allowance of claims 23, 29, and 35.

Claims 24 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.*

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.* and further in view of Barrow.

Claim 31 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.* and further in view of Murayama (U.S. 3,725,743).

Claims 26, 27, and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.* and further in view of Sasaoka *et al.* (U.S. 6,010,769).

Claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.*, and further in view of Sasaoka *et al.* and Arima *et al.* (U.S. 5,375,042).

Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.*, and further in view of Sasaoka *et al.* and Kondo *et al.* (U.S. 6,043,986).

Claim 34 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Frei *et al.*, and further in view of Sasaoka *et al.* and Mancini (U.S. 3,601,750).

Claim 36 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Murayama.

Claim 37 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Memis in view of Kondo *et al.*

Claims 28, 32, 33, and 34 are cancelled, so the rejections of claims 28, 32, 33, and 34 are moot. Applicant respectfully traverses the rejections of claims 24-27, 30-31, and 36-37.

Claims 24-27 are dependent on claim 23. Claims 30-31 are dependent on claim 29. Claims 36-37 are dependent on claim 35. The rejections of claims 24-27 are premised on Memis teaching "at least three vias coupled to a pad." The rejections of claims 30-31 are premised on Memis teaching "at least four vias coupled to a pad." And the rejections of claims 36-37 are premised on Memis teaching "at least five vias coupled to a pad." Applicant has explained above in the discussion of claim 2 why Memis does not teach "vias coupled to the pad," so the premise of the rejections are invalid. Hence, the rejections of claims 24-27, 30-31, and 36-37 are flawed. Thus, since the none of the cited references, teach or suggest, either alone or in combination, "vias coupled to the pad," the office action fails to state a *prima facie* case of obviousness with respect to claims 24-27, 30-31, and 36-37.

Even if the references teach or suggest the elements of a claims 24-27, 30-31, and 36-37, the office action must also provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding to establish a *prima facie* case of obviousness. *In re Sang Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). For each of the obviousness rejections based on a combination of references under 35 U.S.C. § 103(a), the office action states that the combination would have been obvious and lists reasons why the Examiner believes that the combination would have been obvious. However, the office action fails to provide specific, objective evidence of record to support a finding of a suggestion or motivation to combine reference teachings. Hence the office action fails to state a *prima facie* case of obviousness with respect to claims 24-27, 30-31, and 36-37.

Therefore, applicant requests withdrawal of the rejections and reconsideration and allowance of claims 24-27, 30-31, and 36-37.

AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.111
Serial Number: 09/740,103
Filing Date: December 18, 2000
Title: INTERCONNECT
Assignee: Intel

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Docket: 884.386US1

The office action states that several claims were the result of mere design choices and therefore obvious. Applicant respectfully notes that the cases cited were not in the art of designing interconnects and are therefore inapplicable.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone applicant's attorney at 612-371-2109 to facilitate prosecution of the application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743


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September 5, 2003 

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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 25th day of September, 2003.

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Signature

